Simulation in Hemodynamics

March 20-23, 2001

Workshop Schedule

www.mcs.anl.gov/appliedmath/Flow/workshop.html

ARGONNE NATIONAL LABORATORY
Argonne National Laboratory is operated by The University of Chicago for the U.S. Department of Energy

Mathematics and Computer Science Division

UNIVERSITY OF ILLINOIS AT CHICAGO

Department of Mechanical Engineering

THE UNIVERSITY OF CHICAGO

Department of Surgery

Tuesday-3/20

Held at Argonne National Laboratory

6 - 8 PM Reception the Argonne Guest House

Wednesday-3/21

Held at Argonne National Laboratory (Building 221, Rm. A-216)

8:00-8:15 Shuttle Argonne Guest House to Bld. 221
8:15-8:30 Registration

8:30-8:45 Welcoming Remarks

8:45-9:30 **Don Giddens**, Georgia Institute of Technology
"The Role of Computational Fluid Dynamics in Understanding Cardiovascular Disease"

9:30-10:15 **David Steinman**, University of Western Ontario
"Practical Issues in the Computational Imaging of Human Subjects"

10:15-10:45 --Break--

10:45-11:30 **Stanley Berger**, University of California Berkeley
"Simulation of Flow in Normal and Diseased Carotid Arteries"

11:30-12:15 **David Vorp**, University of Pittsburgh
"Computational Analyses to Guide and Interpret Ex-Vivo Vascular Perfusion Experiments"

12:15-1:30 Lunch (Argonne cafeteria, unstructured)

1:30-2:15 **Charles Taylor**, Stanford University
"Simulation-Based Medical Planning for Cardiovascular Disease"

2:15-3:00 **Karl Perktold**, *Technical University Graz*
"Numerical Simulation of Vascular Fluid Dynamics and Wall Mechanics: An Optimal Design Study of Arterial Bypass Anastomoses"

3:00-3:45 -- break -- tour of MCS Futures Lab

3:45-4:30 **Juan Cebral**, George Mason University
"Image-Based Modeling of Arterial Hemodynamics"

4:30-5:15 **Francis Loth**, University of Illinois at Chicago
"Hemodynamic Investigation by Experimental and Computational Methods"

6:00-8:00 Reception Dinner at Argonne Guest House

Thursday-3/22

Held at the University of Illinois at Chicago (Building ERF, Rm. 1043)

8:15-8:30 Load bus to go from the Argonne Guest House to UIC (~45-60 minute trip)

9:45-10:00 Welcoming Remarks

10:00-10:45 **Fady Charbel**, University of Illinois at Chicago
"The Hemodynamics Basis for Cerebral Revascularization: An Interdisciplinary Approach"

10:45-11:30 **John Oshinski**, Emory University
"In-Vivo Measurement of Flow and Wall Shear Stress Using MRI"

11:30-12:15 **Hisham Bassiouny**, University of Chicago
"Hemodynamic Regulation of Molecular Events Underlying Intimal Hyperplasia In-Vivo"

12:15 - 1:30 Lunch (Box lunch, same room)

1:30-2:15 **Steven Jones**, Louisiana Tech
"Coupling of Mechanics and Transport, and Its Relevance to Platelet Adhesion"

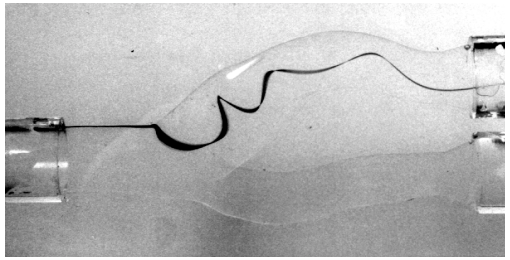
2:15-3:00 **Vince Turitto**, Illinois Institute of Technology
"Mechanical Factors Affecting Platelet Function and Thrombosis"

3:00-3:45 -- break -- tour of UIC labs

3:45-4:30 **Lewis Schwartz**, University of Chicago
"Vein Graft Hemodynamics and Mechanisms Of Neointimal Hyperplasia"

4:30-5:15 **John Frangos**, University of California San Diego
"The Membrane Free Volume Theory of Mechanochemical Transduction in Cells"

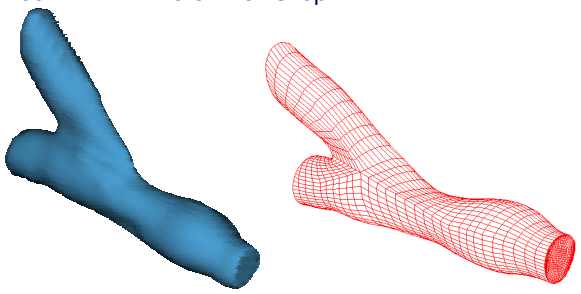
6:00 Dinner at UIC (buffet, same room)
8:00 Bus back to ANL (~30 minute trip)



Friday-3/23

Held at Argonne National Laboratory (Building 221, Rm. A-216)

8:00-8:15	Shuttle Argonne Guest House to Bld. 221
8:30-9:15	**Alfio Quarteroni**, EPFL, Lausanne *"Multiscale Modeling of Cardiovascular Flows"*
9:15-10:00	**James Moore**, Florida International University *"Application of CFD Techniques to Coronary Artery Flow and Stent Design"*
10:00-10:30	-- break --
10:30-11:15	**David Saloner**, University of California San Francisco *"Imaging of Vascular Disease"*
11:15-12:00	**Spencer Sherwin**, Imperial College, London *"High-order Algorithms to Model Mixing and Transport in Arterial Bypass Grafts"*
12:00-1:30	Lunch (Argonne cafeteria, unstructured)
1:30-2:15	**Ajit Yoganathan**, Georgia Institute of Technology *"Palliating Congenital Heart Lesions: Developing Diagnostic Tools and Surgical Planning using Computational Fluid Dynamics"*
2:15-3:00	**Ross Ethier**, University of Toronto *"Solution-Adaptive Techniques in Computational Hemodynamics"*
3:00-3:15	-- break --
3:15-4:00	**Paul Fischer**, Argonne National Laboratory *"Numerical Simulation of Weakly-Turbulent Vascular Flows"*
4:00	End of Workshop



DIRECTIONS TO ARGONNE INFORMATION CENTER:
http://www.anl.gov/OPA/anlil.html

Argonne National Laboratory is located about 25 miles southwest of Chicago. To reach Argonne from O'Hare Airport, drive east (toward Chicago) on Interstate 190 to the exit for Interstate 294 south (toward Indiana). Go south on Interstate 294 to the exit for Interstate 55 south (toward St. Louis). I-294 is a toll road, so you will need $0.95 in change (there are two tolls at $0.40 and one at $0.15) for the automatic lanes. Alternatively, you can use the manual lanes with a human toll taker.

From I-294, take I-55 south to the exit for South Cass Avenue. Exit at South Cass Ave, drive over the overpass, and you will see the sign for Argonne National Laboratory on your right. Follow the signs and turn into the Laboratory entrance on Northgate Road. You will need to stop at the Visitor Center to obtain a pass.

From Midway Airport, take Cicero Avenue north to the entrance to Interstate 55 south (toward St. Louis), which will be on your left, then proceed as described above.

DIRECTIONS TO THE UNIVERSITY OF ILLINOIS AT CHICAGO, DEPARTMENT OF MECHANICAL ENGINEERING
http://www.me.uic.edu/contact/directions.htm

We are located in the Engineering Research Facility (ERF) on the NW corner of Taylor and Halsted Streets in downtown Chicago. Note that the entrance to ERF is on Taylor Street. From the Taylor Street entrance, proceed up the stairs to the second floor and through the Atrium. The Department of Mechanical Engineering's main office is located in Room 2039.
PUBLIC TRANSPORTATION: Transit to ERF is available by Chicago Transit Authority (CTA) buses Taylor #37 & Halsted #8 and by subway via the BLUELINE. Exit at UIC-Halsted and proceed south on Halsted Street to Taylor (approximately a 10 minute walk).

PARKING: Public parking is available via a four-level covered lot on the NE corner of Taylor & Halsted streets opposite our building
DRIVING FROM THE NORTH: Take 90/94 South (Kennedy Expressway) to the Taylor Street Roosevelt Ave., Exit 1290. Keep to the right and turn right immediately onto Taylor Street. The entrance to the parking garage will be immediately to your right.
FROM THE SOUTH: Take 90/94 North (Dan Ryan Expressway). Pass to the far right lane and take the Roosevelt Road exit. Stay in the far right lane and pass Roosevelt Ave. Turn left onto Taylor Street. The entrance to the parking garage will be to your right.
FROM THE WEST: Take 290 E. (Eisenhower Expressway) to 90/94 South (Dan Ryan Expressway). Immediately get off onto Taylor Street/Roosevelt Ave., the first exit. Remain right and proceed right at the light onto Taylor Street. The entrance to the parking garage will be immediately to your right.
FROM THE EAST: In the Loop area, take Harrison Street or Roosevelt Road. Proceed west and turn left onto Halsted Street.

Organizers:

Paul Fischer, Ph.D.
Argonne National Laboratory
(630) 252-6018
fischer@mcs.anl.gov

Francis Loth, Ph.D.
University of Illinois at Chicago
(312) 996-3045 office
(630) 910-7607 home
floth@uic.edu

Hisham Bassiouny, M.D.
University of Chicago
(773) 702-6128
hbassiou@surgery.bsd.uchicago.edu

Conference Secretary

Bonnie Ritchey
(630) 252-7162
ritchey@mcs.anl.gov